Data Structures

Practical 7

Objective:

WAP to implement Queue Data structure using ARRAY.

Code:

```
#include<iostream>
#define max 8
using namespace std;
int front=0,rear=-1,i;
int q[max];
void initialize()
{
cout<<"Queue is initialized"<<endl;
}
void underflow()
{
if(rear==-1)
{
cout<<"Queue is empty"<<endl;
}
else
{
cout<<"Queue is not empty"<<endl;
```

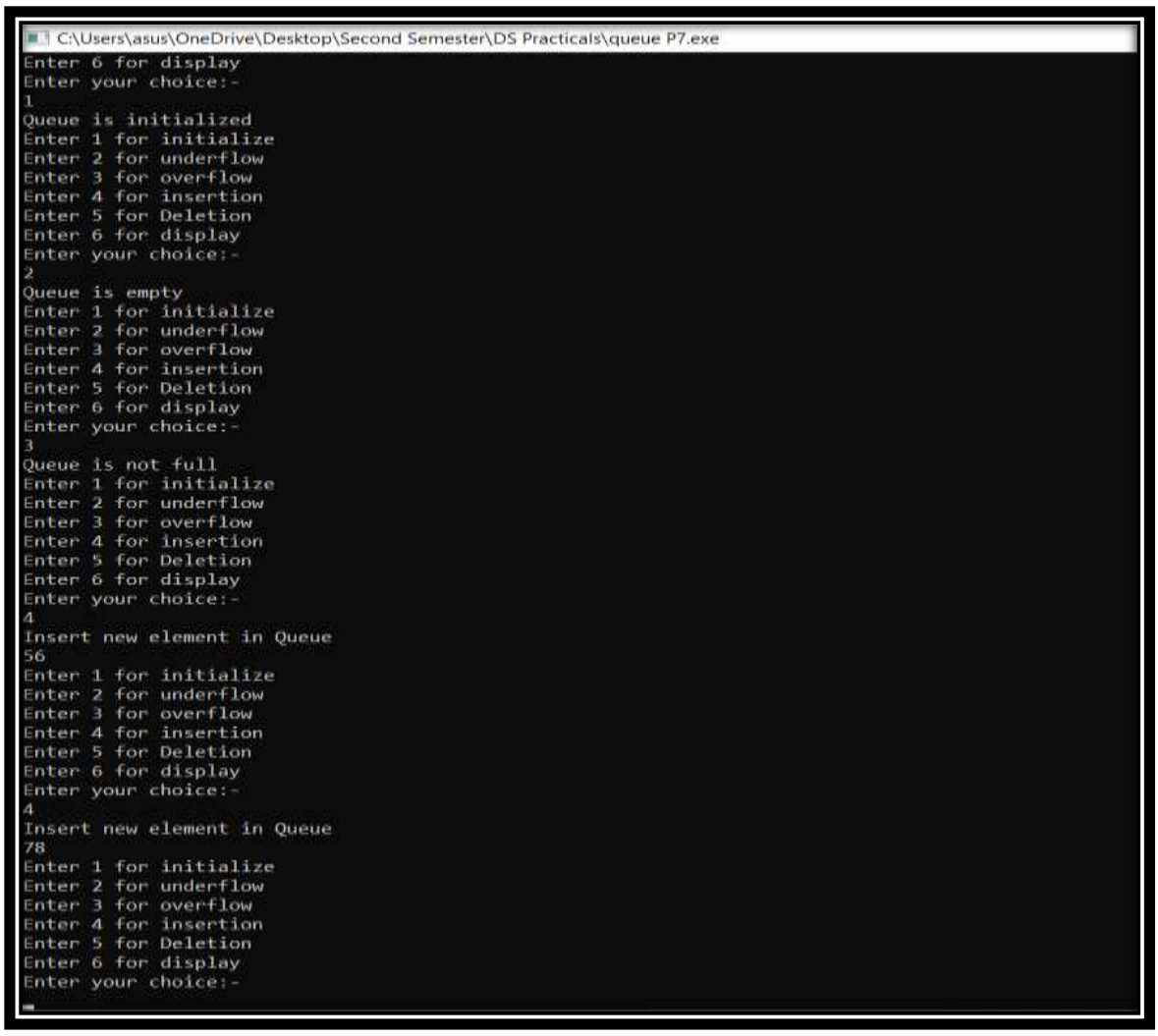
```
}
}
void overflow()
{
if(rear==max-1)
{
cout<<"Queue is full"<<endl;
}
else
{
cout<<"Queue is not full"<<endl;
}
}
void insertion()
{
if(rear==max-1)
{
cout<<"Queue is full"<<endl;
}
else
{
rear++;
cout<<"Insert new element in Queue"<<endl;
cin>>q[rear];
}
}
void deletion()
{
if(rear==-1)
```

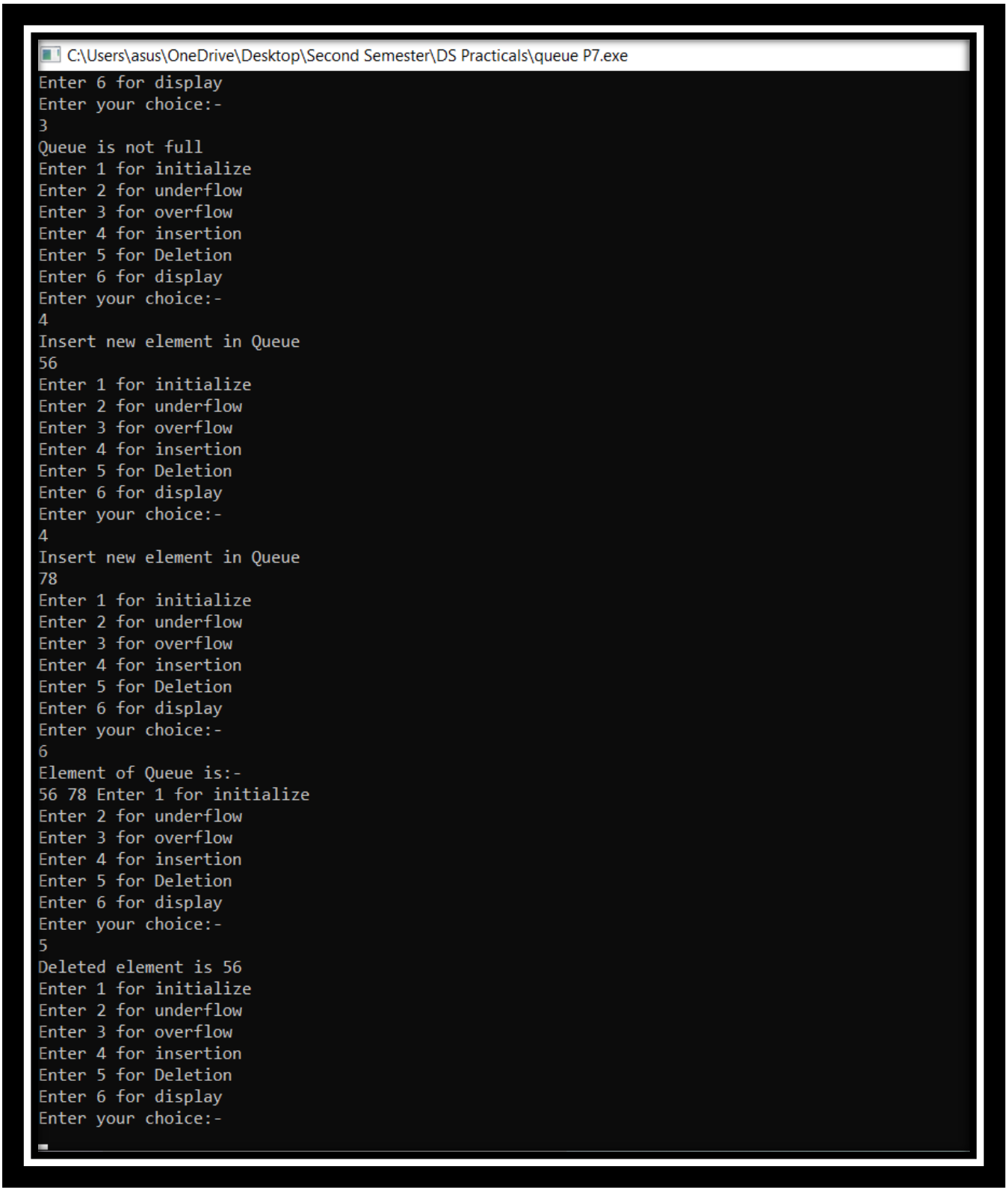
```
{
cout<<"Queue is empty"<<endl;
}
else
{
cout<<"Deleted element is "<<q[front]<<endl;
for(i=0;i<=rear;i++)
{
q[i]=q[i+1];
}
rear--;
}
}
void display()
{
if(rear==-1)
{
cout<<"Queue is empty"<<endl;
}
else
{
cout<<"Element of Queue is:- "<<endl;
for(i=front;i<=rear;i++)
{
cout<<q[i];
}
}
}
int main()
```

```
{
int a;
do
{
cout<<"Entre 1 for initialize"<<endl;
cout<<"Entre 2 for underflow"<<endl;
cout<<"Entre 3 for overflow"<<endl;
cout<<"Entre 4 for insertion"<<endl;
cout<<"Entre 5 for Deletion"<<endl;
cout<<"Entre 6 for display"<<endl;
cout<<"Entre your choice:-"<<endl;
cin>>a;
switch(a)
{
case 1:
initialize();
break;
case 2:
underflow();
break;
case 3:
overflow();
break;
case 4:
insertion();
break;
case 5:
deletion();
break;
```

```
case 6:
display();
break;
default:
cout<<"invalid choice"<<endl;
}
}
while(a<7);
}
```

Output:


C:\Users\asus\OneDrive\Desktop\Second Semester\DS Practicals\queue P7.exe
Enter 6 for display
Enter your choice:-
1
Queue is initialized
Enter 1 for initialize
Enter 2 for underflow
Enter 3 for overflow
Enter 4 for insertion
Enter 5 for Deletion
Enter 6 for display
Enter your choice:-
2
Queue is empty
Enter 1 for initialize
Enter 2 for underflow
Enter 3 for overflow
Enter 4 for insertion
Enter 5 for Deletion
Enter 6 for display
Enter your choice:-
3
Queue is not full
Enter 1 for initialize
Enter 2 for underflow
Enter 3 for overflow
Enter 4 for insertion
Enter 5 for Deletion
Enter 6 for display
Enter your choice:-
4
Insert new element in Queue
56
Enter 1 for initialize
Enter 2 for underflow
Enter 3 for overflow
Enter 4 for insertion
Enter 5 for Deletion
Enter 6 for display
Enter your choice:-
4
Insert new element in Queue
78
Enter 1 for initialize
Enter 2 for underflow
Enter 3 for overflow
Enter 4 for insertion
Enter 5 for Deletion
Enter 6 for display
Enter your choice:-


C:\Users\asus\OneDrive\Desktop\Second Semester\DS Practicals\queue P7.exe
Enter 6 for display
Enter your choice:-
3
Queue is not full
Enter 1 for initialize
Enter 2 for underflow
Enter 3 for overflow
Enter 4 for insertion
Enter 5 for Deletion
Enter 6 for display
Enter your choice:-
4
Insert new element in Queue
56
Enter 1 for initialize
Enter 2 for underflow
Enter 3 for overflow
Enter 4 for insertion
Enter 5 for Deletion
Enter 6 for display
Enter your choice:-
4
Insert new element in Queue
78
Enter 1 for initialize
Enter 2 for underflow
Enter 3 for overflow
Enter 4 for insertion
Enter 5 for Deletion
Enter 6 for display
Enter your choice:-
6
Element of Queue is:-
56 78 Enter 1 for initialize
Enter 2 for underflow
Enter 3 for overflow
Enter 4 for insertion
Enter 5 for Deletion
Enter 6 for display
Enter your choice:-
5
Deleted element is 56
Enter 1 for initialize
Enter 2 for underflow
Enter 3 for overflow
Enter 4 for insertion
Enter 5 for Deletion
Enter 6 for display
Enter your choice:-